AN INVESTIGATION OF SCHOOL BOARD PRACTICES IN THE PURCHASE AND UTILIZATION OF TEXTBOOKS AND OTHER CLASSROOM-BASED LEARNING MATERIALS

LINDA FISCHER
BETTY LAMONT

This research project was funded under contract by the Ministry of Education, Ontario.

It reflects the views of the authors and not necessarily those of the Ministry.

The Honourable Sean Conway, Minister

Ontario
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Toronto, Ontario

1. Introduction

The problems surrounding the issue of textbook expenditures and use are of increasing concern to teachers, administrators, curriculum planners, parents, and publishers across Ontario. Attention has been brought to the fore by recent investigations and pressures being exerted by individuals and groups representing both education and publishing interests.

The issue is indeed a complex one, and difficult to isolate from a host of other educational issues. A clear analysis of the problem is frustrated by incomplete and unreliable information. Statistics to date have grown out of data based on inconsistent accounting reporting and practices on the part of school boards in the province. Reports based on uninformed opinions force the reader to question if Ontario is, in fact, at the low end of the scale in textbook spending as reported by a number of sources, if there has been an actual decline in textbook spending and use, and, indeed, if a problem exists or not.

Realities, such as declining enrolment, the actual or impending closing of schools, the inflation rate, increased costs of textbook production, the increase in non-discretionary expenditures, forthcoming curriculum guidelines resulting from Ontario Schools: Intermediate and Senior Divisions, costs of new program initiatives related to areas, such as technology, and implementation of special education programs under Bill 82, may have had an adverse impact on textbook budgets.

There remains also the question of whether or not changing educational philosophies have resulted in changes in textbook use. Decreased commitment to the textbook as a learning tool, with the resulting increased use of alternative instructional materials, has been both promoted and criticized by educators. A trend toward resource-based learning is supported by resource documents such as the Ontario Ministry of Education's Partners in Action: The Library Resource Centre in the School Curriculum.

A clear need arises to define and isolate the issues related to the textbook question and to design a method of sorting out the maze of inconsistent information which is available as a result of present reporting procedures.

This report describes a research study which addresses the issues of policy, expenditure levels, and patterns of use related to textbooks, library books, and other classroom-based learning materials in Ontario schools. The research questions as proposed by the Ontario Ministry of Education were as follows:

- How much money do school boards spend per year on textbooks, other books, and learning materials for use on a "regular basis" by students in the classroom?

- What is the decision-making process by which the expenditure levels are decided?

- Who decides on the selection and quantity of the learning materials involved: the boards, board officials, subject co-ordinators, etc.?

- What patterns are associated with the use of learning materials in the classroom: single text all year, single text plus other materials, several texts, etc.?

- How long does a textbook last and/or how often are textbooks replaced?

- Can a distinct trend be identified as to the significance of textbooks in the total spectrum of learning materials?

- What are the views of people at all levels in the system as to the impact of present learning-materials funding on the quality of education?

- How aware are these people of the respective roles of the local board and the ministry in the development and implementation of learning-materials policy?

In addition, we were requested to conduct a review of the available relevant literature to identify factors contributing to the productivity of schools with particular reference to learning materials. Issues related to decision-making patterns for selection and quantity of learning materials, patterns of use, and textbook expenditures were added as contextual and critical components of this study.

The research is based on data gathered from Ontario school boards as reported by board officials, co-ordinators, elementary and secondary school principals, secondary school department heads, elementary school teachers, and board trustees. The respondents include public and Roman Catholic separate school boards of all sizes from all areas of the province.

2. Summary and Conclusions

In this study, which has attempted to get a grasp on per-pupil expenditures for textbooks in Ontario, determine trends in use, and reasons for change, results show a complex set of forces and reasons.

While per-pupil expenditures for textbooks are not as high as some would hope (this may well be a major problem for the Canadian textbook-publishing industry), the reasons are not solely economic, and simple solutions, such as infusions of money earmarked for textbooks, will not completely address the issues. Decisions about expenditures are being made at the school level generally and include a wide range of options which require an outlay of funds, e.g., other commercially developed learning materials, photocopier machines and supplies. Some textbook spending has been delayed because of pending new curriculum guidelines; other recent guidelines have spurred spending (e.g., French as a Second Language) or highlighted the unavailability of appropriate textbooks (e.g., general level physics).

It is possible to obtain estimates of per-pupil expenditures for textbooks and there is some degree of confidence in them, as they are confirmed from several sources. On the other hand, they suffer from a lack of consistency from board to board, hence exactly what is being measured by the composite score is not always clear. These two conclusions may appear contradictory, but they are not. This will become clear in chapter 4.

While, in the past, the voices of doom and gloom have been the loudest, there was some evidence that some schools and some boards had adequate expenditure levels for textbooks and felt that the impact on student learning had been positive.

The use of textbooks was reported in the study as both increasing and decreasing and the reasons given for both moves were sometimes similar. Reasons for a decrease included ministry initiatives (resource-based learning and new curriculum guidelines), economic factors (decrease in available funds), and alternate resources.

While upper limits on non-salary expenditures of schools were generally set by boards and primarily followed formulae, the schools decided how to spend grants and which titles and mixes of learning resources to use. Reasons that school-based educators gave for decisions were often pragmatically based (increased availability of alternate resources) or followed current educational philosophy (increase in resource-based learning). Many suggested, however, that if textbooks which better matched board curriculum guidelines and individual courses of study were available, they would use them. Whether or not textbooks could be flexible enough to meet the varied needs that are met by the use of alternate resources is a difficult question to answer.

Although more educators in the classroom felt a more negative impact of current availability of funds than educators some distance from the classroom, many experienced a positive impact. Most educators believed that policy responsibility for learning-materials expen-

ditures should be shared by the ministry and boards. The same was true for the approval of textbooks. Policy on patterns of use in the classroom, however, was generally thought to be a board or school responsibility.

An elaboration of the above summary follows, each subsection a restatement of the conclusions of each of the chapters of this report.

Learning-Materials Expenditures

Board interpretations of ministry definitions of various categories of learning materials were not consistent, even when the definitions were clearly stated. Unclear definitions and intent made it impossible for firm conclusions to be drawn from financial data concerning these categories.

Two tentative conclusions were possible, however:

- Given that information about textbook expenditure levels from elementary and secondary school principals was similar to Ministry of Education estimates, there was some additional confirmation for the ministry estimates (mean per-pupil expenditure of about $17).

- Using the principals' basic figure for "textbook and reference book" expenditures, it was possible to estimate additional funds expended on other textbook categories (from $1 for secondary school students to $2 for public elementary school students) and consumable workbooks (from $1.50 for secondary school students to almost $5 for separate school students -- JK/K-8).

Decision Making Regarding Expenditure Levels, Selection of Classroom-based Learning Materials in General, and Approved Textbooks

Expenditure level and selection decisions about learning materials tended to be centred in the schools. Boards were involved more in textbook and computer-software selection than in other kinds of learning materials, but the decisions still were centred in schools for the most part.

Within schools, expenditure decisions were made by either principals alone or in teams which included principals and teachers. For within-school learning-materials selection, team decisions were dominant and very few principals reserved the final decision to themselves.

Patterns of Use

Of all the time that students were working with learning materials, elementary school students from Grades 3 to 8 were involved with textbooks almost 30% of the time. For Grades 9 to 12, the mean percentage of time of involvement with textbooks was about 37%.

Mathematics at both the elementary and secondary school levels was the subject with most textbook involvement. Language arts at both levels and modern languages and sciences at the secondary school level were also quite high.

In classrooms where textbooks were used, usually more than one full set was used for all or part of the year. Twenty-four per cent of elementary school teachers and 15% of secondary school department heads indicated that there was some sharing of textbooks because of "insufficient number of texts".

Length of Time Textbooks Are Used

Most textbooks titles were 10 or fewer years old (since the copyright date) and hardcover copies were expected to last through an average of 8 secondary students or 5 elementary students before wearing out. Apparently hardcover textbooks have a slightly longer life at the secondary level than at the elementary level. Presumably, small replacement orders or rebinding fill in the gaps until a new edition or new title is purchased.

Trends in the Use of Textbooks (Percentage of Students' Time)

A higher percentage of teachers saw a decrease in the use of textbooks than saw an increase, but there was still a sizeable percentage who didn't indicate a decrease. The most cited reasons for decline were ministry-initiated changes - the trend toward resource-based learning and changes in curriculum guidelines. Decreases in funds available and the increased availability of photocopiers also are cited as reasons for a decrease in the use of textbooks.

Although the researchers recognize that the use of photocopies may or may not be a legitimate or legal alternative to textbooks, no attempt to determine this was made in this study.

Views of Educators of the Adequacy of Present Funding Levels for Learning Materials

While most of the recent publicity about learning-materials expenditures has focused on the scarcity or shortage of funds, educators had distinctly mixed views as to the impact of a shortage. More saw a negative impact than a positive one, but a sizeable portion did see a positive impact.

Policy Responsibility

Six of the categories of educators surveyed viewed policy responsibility for expenditure levels for learning materials and approval of textbooks as the joint responsibility of the ministry and boards/schools. Opinions leaned to slightly more ministry responsibility for policy on approval of textbooks. Opinions clearly lay in the direction of preferred board/school responsibility for patterns of use in the classroom.

3. Methodology

The basic method of obtaining information to answer the research questions was to mail questionnaires which were supplemented at the end of the survey with telephone interviews. The final version of the eight questionnaires was accomplished after a series of visits to a variety of school boards and a pilot test of the English version.

Sampling

Eight different categories of educators and related groups were surveyed. The sampling plan varied for different categories and is summarized in table 1, column 2.

The following points are relevant to the sampling process:

- The lists of boards having elementary and secondary schools were taken from the 1984/1985 Directory of Education, Ministry of Education, Ontario. One hundred and sixty-six boards were identified.

- Superintendents of curriculum (or equivalent) were identified by their directors of education.

- Trustees and co-ordinators/consultants/resource teachers were identified from lists of trustees and co-ordinators supplied by boards to the Ministry of Education.

- A sample of 30 boards was chosen randomly. The sampling was within size strata to ensure that the resulting proportions of students in the 30 boards matched the proportions in all boards.

- The resulting sample was distributed across strata as follows:

STRATA	BOARD SIZE: NO. OF STUDENTS	TOTAL NUMBER OF BOARDS	NO. OF BOARDS IN SAMPLE
1	up to 5000	89	16
2	5001 - 9999	22	3
3	10 000 - 29 000	40	8
4	30 000+	15	3

- The elementary-school-teacher sample was accomplished by telephone contact with each school in the sample. With the principal's co-operation, a random sample was drawn from each of the primary, junior, and intermediate (Grades 7-8) divisions. Extra care was taken to ensure that the sample was truly random.

- The department-head sample was simpler. Ten subject areas were identified and a questionnaire to the head of each of the ten departments was sent to each principal for distribution. The ten subject areas were: language arts, mathematics, geography, modern languages, science, history, health and physical education, family studies, art and music, and industrial arts. The department-head sample is not meant to be an unbiased sample of secondary school teachers. It is recognized that department heads are more experienced and are probably of an average older age.

- French-language instructional units were included in this study when they fell into the ramdom sample. French questionnaires were sent to all the appropriate respondents, but no separate analysis was done as the numbers were too small. Given that units with English as a main language are such a high percentage of the total sample, and that the availability of French-language resources other than textbooks is more limited than English-language resources, it does not appear logical to generalize the findings to the smaller category of units.

- "Language arts" refers to English in English-language settings and to français in French-language settings.

Although some sampling plans were complex (e.g., the elementary-school-principal sample was a stratified cluster -- two-stage -- sample) the SPSS[1] statistics software available treats all samples as if they are simple random samples. Some analysis "power" was judged to be lost, but it was not crucial to the conclusions drawn from the data.

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1. SPSS = Statistical Package for the Social Sciences is a common statistical software package used for analyzing survey research.

Table 1: Description of Populations and Samples Surveyed

POPULATION	SAMPLING METHOD	SIZE OF SAMPLE	# INELIGIBLE	# ELIGIBLE	# RESPONSE	% RESPONSE
° Directors of Education	- n.a.; all boards	166 boards	0	166	77	46.3
° Superintendents of Curriculum	- n.a.; all boards	166 boards	0	166	106	63.8
° Trustees	- 1 from each board; randomly selected	166 boards	n/a	166	43	25.9
° Co-ordinators	- simple random sample from ministry list	400 co-ordinators	0	400	252	63.0
All Below Were Sampled From a Stratified Random Sample of 30 Boards						
° Elementary School Principals	- random sample of schools within strata	175	0	175	115	65.7
° Secondary School Principals	- random sample of schools within strata	100	0	100	93	93.0
° Elementary School Teachers	- random sample of teachers within schools (schools selected were those in principal sample)	450	11*	439	272	61.9
° Secondary School Department Heads	- 10 dept. heads from each school in a random sample of schools (schools selected were those in principal sample)	750	60**	690	349	50.6

* Includes teachers who left the school after being included in the sample or teachers who had changes in teaching assignments.

** Includes department-head positions which did not exist in all high schools.

Procedures/Responses

The questionnaires were mailed in waves during October 1985 and a series of reminders was mailed periodically over the next six to eight weeks. A disappointing response rate in some groups led to a decision in early 1986 to use telephone interviews to bring the response rate up to an acceptable level. Concentration was on secondary principals, elementary principals, elementary teachers, and secondary department heads. Table 1, right column, summarizes the results of our efforts. The results of only one category, trustees, remained unacceptable. Although we did not follow through on the trustee non-respondents, as was done for some of the other samples, we do know that there is often difficulty getting mail to trustees, and in October 1985 they were in the middle of elections. If it had been possible, we would have sent the questionnaires to trustees at a different time of the year.

Non-Response Bias

All respondent categories had different response rates in each strata. The needed adjustment was easily made by using a weighting provision in the SPSS package. Respondents in those strata that were underrepresented were weighted a fraction higher and those that were overrepresented were weighted a fraction lower.

After this adjustment was made, a check for response bias was made where possible:

- Boards that returned our financial questionnaire were compared on expenditure categories and average daily enrolments, when information for non-respondent boards was available from ministry sources.

- The four samples which were supplemented with telephone interviews to bring the response rate up to acceptable levels, provide a natural comparison between mailed and phoned responses. The phone samples were random samples of non-respondents at a certain time. Any biases detected would have to be assumed to be a non-response bias although adding the telephone group to the mailed group (as is done for most questions) would diminish the bias, if any.

- A comparison of mailed questionnaires with telephone interviews of principals was made for the amount of the grants, the number of students, expenditures for textbooks, and the principal's role in the selection of textbooks.

- A comparison of mailed questionnaires with telephone interviews of teachers and department heads was made on grade, subject (department), role in decision making about textbook selection, and perceptions of change in student time working with textbooks.

Few differences were found. Those that were are as follows:

- While responding boards did not differ from most non-respondent boards on most characteristics checked, non-responding boards had a much lower mean expenditure for "other learning materials" ($70 000 per board) than responding boards ($280 000 per board) (t-test, two-tailed, p=.05). This is probably a difference in reporting rather than a difference in boards, as subsequent discussion will make clear.

- The only bias found in either principal group was that secondary school principals who were phoned were less likely to have played a role in final decision making regarding selection of texts than the principals who responded to the mailed questionnaire (Chi-square, p=.02).

- There were no significant differences between the phoned or mailed teacher and department-head groups.

Analysis

Weighting the responses to get a more representative sample is a common practice in survey-research analysis. When small numbers are involved, however, the computer-generated responses are sometimes rounded awkwardly. One such instance in the subsequent data is that sometimes the total number of boards that responded is 77 and sometimes it has been rounded to 76. This does not change the conclusions.

Conclusion

The few instances of response bias observable in the five samples tested show no bias of significance that might affect the conclusions drawn elsewhere in this report.

4. Learning-Materials Expenditures

The Ministry of Education collects many statistics annually from school boards and schools. One set of information included on the annual financial report by boards is information about the amount of money spent by all schools and the central office on three categories of learning materials:

- textbooks and reference books
- library books
- other learning materials

Definitions of these categories are provided through the Ontario Ministry of Education Uniform Code of Accounts:

- ACCOUNT 502: CLASSROOM TEXTBOOKS AND REFERENCE BOOKS. "Purchase of Textbooks and Reference Books (including freight and express charges) for classroom use. Included is the cost of repairing books purchased for use in the classroom."
- ACCOUNT 505: LIBRARY BOOKS AND SUPPLIES. "Purchases (including freight and express charges) of all library books other than those approved under the Capital Grants Plan in respect of new library installations. The library books approved under the Capital Grants Plan are to be treated as Capital Expenditures. This account also includes the cost of repairing library books."
- ACCOUNT 503: CLASSROOM FILMS, REELS, TAPES, TRANSPARENCIES, ETC. "Purchase of films, reels, tapes and transparencies (including freight and express charges) for classroom use. Included is the cost of repairing such items."

Although the central focus of this enquiry is textbooks, expenditures on alternate forms of learning materials are of interest because they may have an impact on funds available for textbooks. Reporting will be done therefore in all three categories above, as well as for more specific categories where possible.

The calculations of the Ministry of Education for all boards reporting on the annual financial statement show wide variations of per-pupil expenditures in all three categories. Table 2 shows these variations (minimums and maximums) within three categories - public elementary, separate, and secondary. The wide variations suggested a validity problem with the data which comes from an unaudited section of the financial report from the boards.

Table 2: 1984 Expenditure per Pupil on Textbooks, Library Books, and Other Learning Materials Calculated From Financial Information Supplied to the Ministry of Education by All School Boards

	MINIMUM	MAXIMUM	MEAN	MEDIAN
PUBLIC ELEMENTARY				
Textbooks	$ 2.06	$ 38.78	$ 12.63	$ 11.33
Library Books	0.24	26.02	8.43	7.63
Other Learning Materials	0.02	116.44	18.84	2.43
SEPARATE ELEMENTARY				
Textbooks	5.16	74.82	20.94	17.86
Libary Books	2.06	21.37	7.68	6.36
Other Learning Materials	0.10	131.33	23.83	8.43
SECONDARY				
Textbooks	3.71	51.98	20.29	18.46
Library Books	0.22	37.42	10.34	8.90
Other Learning Materials	0.08	348.66	31.67	4.09

Table 3: 1984 Expenditure per Pupil on Textbooks, Library Books, and Other Learning Materials Calculated From Financial Information Supplied in This Survey by a Respondent Set of 77 Boards

	MINIMUM	MAXIMUM	MEAN	MEDIAN	NO. OF BOARDS*
PUBLIC ELEMENTARY					
Textbooks and Reference Books	$ 4.46	$ 42.17	$ 13.02	$ 11.31	35
Library Books	0.0	17.85	7.54	6.93	37
Other Learning Materials	0.0	116.53	22.18	2.83	35
SEPARATE ELEMENTARY					
Textbooks and Reference Books	7.80	74.82	18.30	16.56	26
Library Books	0.0	12.79	6.75	6.09	27
Other Learning Materials	0.0	131.33	25.23	15.86	26
SECONDARY					
Textbooks and Reference Books	5.94	39.72	20.26	19.23	35
Library Books	2.45	22.07	9.95	8.91	35
Other Learning Materials	0.0	206.13	36.04	5.85	35
TOTAL					
Textbooks and Reference Books	5.95	74.82	17.07	16.40	61
Library Books	0.0	18.98	7.53	6.38	65
Other Learning Materials	0.0	181.72	28.19	6.29	61

* The number of boards varies in each calculation because the information necessary was not always available. Usually the deleted boards were the smallest ones and would have had varying effects on the results, but primarily in a downward direction on means and medians.

Visits to school boards and a pilot test made it clear that the ministry definitions of learning-materials categories were either too vague for interpretation or were being ignored even when they were specific.

For example:

- Some boards included all textbook-like books, regardless of quantity in the textbook category; other boards used 5 copies of any one title as a cut-off point (5 copies or more are considered textbooks); others included only full class sets.

- Some boards included only Circular 14 titles in the textbook category while others included board approved non-Circular 14 titles as well.

- Some boards included textbooks in other categories.

- Boards charged textbook repairs to a variety of accounts.

- Some boards charged library supplies and non-book resources to the library "books" category, while others did not.

- Few boards stayed with the restriction of audio-visual materials to "other learning materials" category; in fact, there was so little consistency on this item that any reported figures are probably meaningless.

Another very important conclusion at this point in the research was that many, if not most, boards were not really in a position to report exactly what was in their "textbook" or "other" categories because the coding was done by central-office clerks who had differing levels of familiarity with the titles and code definitions.

At this point, a decision was made to determine the degree of consistency and inconsistency of inclusions in categories of the board data and to seek alternate sources of information; that is, the principals of schools. From the pilot test, it seemed that secondary school department heads were more aware of textbook expenditures than principals. In fact, many secondary school principals in the pilot test claimed that they would have to collect the information from the department heads before they could report it to us. While our findings from the boards corroborated our previous observations, our findings from the schools added somewhat to the knowledge.

Table 3, which is data from this survey, parallels the information in table 2 from ministry data, with the addition of a "total" category.

There are no statistically significant differences between the data from our survey and the data from ministry sources.

Validity of Board Data

Two additional questions were asked of board representatives to allow further investigation of the questions raised. Boards were asked to check off the types of learning materials whose expenditures were included in their totals in the three categories and to specify the amounts expended for each type of learning material, if they could. The latter request yielded even less data than was expected and was not usable. The former yielded interesting and somewhat discouraging data.

As was anticipated, boards have quite different coding practices. Table 4 shows the numbers of boards (out of the total of 76 weighted boards) that indicated which expenses were included in each of the three "learning materials" categories or in another category. From this table, it can be concluded that:

- boards are quite different in the ways in which they include all types of learning materials except "approved textbooks" and "library books";

- few boards limit "other learning materials" to audio-visual materials (other "non-print" resources);

- the expenditures for "approved textbooks" are consistently included in the textbook category, but the waters are muddied by the differences in treatment (and definitions) of "reference books" and "supplementary or non-approved texts".

If a clear picture of learning-materials expenditures is to emerge, these differences in definitions and accounting practices need to be clarified.

Alternate Sources of Data

Principals were asked to supply expenditure data for learning-materials categories and some data comparable to that which was obtained from the boards is available. Table 5 shows that the statistical mean for per-pupil expenditures for "textbooks and reference books"

Table 4: Number of Boards (out of a total of 76) Which Report Inclusion of Expenses in Ministry Categories

	CATEGORIES			
	Textbooks and reference books	Library books	Other learning materials	Other (please specify)
° Approved textbooks	72	1	3	1
° Reference books	54	19	4	1
° Supplementary or non-approved textbooks	39	1	21	6
° Consumable workbooks	5	0	42	26
° Other non-consumable print resources intended for use in classrooms	4	2	45	19
° Other non-print resources intended for use in classrooms	0	1	49	19
° Computer software intended for use in classrooms	0	3	35	30
° Photocopy paper	0	0	25	43
° Library Books	3	69	1	0
° Other library resources	1	36	25	7
° Textbook repairs and/or rebinding	21	7	19	19

Table 5: 1984 Expenditure per Pupil on Textbooks and Library Books Calculated From Financial Information Supplied in This Survey by a Respondent Set of 208 Schools

	MINIMUM	MAXIMUM	MEAN	MEDIAN	NO. OF SCHOOLS*
PUBLIC ELEMENTARY					
Textbooks	1.07	75.22	12.87	12.23	75
Library Books	0.0	48.66	8.51	7.69	88
SEPARATE ELEMENTARY (JK-GR 8)					
Textbooks	2.65	38.51	14.37	14.57	23
Library Books	0.0	16.67	2.86	2.57	32
SECONDARY (PUBLIC)					
Textbooks	2.13	202.37	24.15	20.62	71
Library Books	0.0	85.42	11.32	10.22	89

* The number of schools varies in each calculation because the information necessary was not always available.

Table 6: 1984 Expenditure per Pupil on Textbooks, Reference Books, Supplemental or Non-Approved Textbooks, and Workbooks Calculated From Financial Information Supplied in This Survey by a Respondent Set of 208 Schools

	TEXTBOOKS AND REFERENCE BOOKS	TEXTBOOKS, REFERENCE BOOKS, AND SUPPLEMENTAL TEXTBOOKS	TEXTBOOKS, REFERENCE BOOKS, SUPPLEMENTAL TEXTBOOKS, AND CONSUMABLE WORKBOOKS	NO. OF SCHOOLS
PUBLIC ELEMENTARY SCHOOLS	12.87	14.89	18.57	75
SEPARATE ELEMENTARY SCHOOLS (K-8)	14.37	15.64	20.29	23
SECONDARY SCHOOLS	24.15	25.31	26.82	71

($12.87) was about the same for public elementary schools as the mean obtained from board sources (table 2, $12.63). Although the secondary school mean ($24.15) appears higher, it is not statistically significantly different from the ministry mean ($20.29) calculated from data supplied by all boards (95% confidence intervals).

The separate elementary figures are not comparable to ministry figures, as the elementary school sample includes only schools with JK/K through Grade 8, while 1984 ministry definitions of separate elementary include JK/K through Grade 10.

Starting with the data in the "mean" column as a basis, comparisons can be made from within the schools categories that show what happens when expenditures for supplemental texts and consumable workbooks are added to the "textbook and reference book" expenditures. Table 6 summarizes this data. It is offered as an aid in interprovincial comparisons which tend to be made using figures with varying types of materials included.

Conclusions

Board interpretations of ministry definitions of various categories of learning materials were not consistent even when the definitions were clear. Unclear definitions and intent made it impossible for firm conclusions to be drawn from financial data concerning these categories.

Two tentative conclusions were possible, however:

- Given that information about textbook expenditure levels from elementary and secondary school principals was similar to Ministry of Education estimates, there was some additional confirmation for the ministry estimates (mean per-pupil expenditure of about $17).

- Using the principals' basic figure for "textbook and reference book" expenditures, it was possible to estimate additional funds expended on other textbook categories (from $1 for secondary school students to $2 for public elementary school students) and consumable workbooks (from $1.50 for secondary school students to almost $5 for separate school students JK/K-8).

5. Decision Making Regarding Expenditure Levels, Selection of Classroom-Based Learning Materials in General, and Approved Textbooks

Decisions regarding textbook-expenditure levels and the selection of classroom-based learning materials and approved textbooks were made at all levels of decision making within the educational community in Ontario boards and schools. The degree to which the system partners participated in the decisions and the level at which decisions were made are critical factors in the broader issue of textbook expenditure and use. Questions, such as the following are relevant:

- Are decisions made at the board or school level?
- Are decisions at the school level made by administrators alone, or are teachers involved in the decisions?
- Do teams make the decisions?
- Are there differences in the level of decision making between expenditures for learning materials and selection of learning materials?

Expenditure-Level Decisions

The most common pattern by far in the province with regard to all the types of decisions mentioned above is that boards allocated block grants to schools for non-salary expenses, and most decisions about the way in which the grants are spent were up to the school. This was confirmed by information supplied by both the boards and schools.

Board representatives reported that almost all of the 77 school boards (86%) gave a block grant for non-salary expenses and allowed the schools to make decisions regarding expenditure levels. The exceptions were 11 boards which were mostly strata 1 boards, many of which had only one school.

Seventy-eight per cent of elementary school principals from 128 schools reported that they received block grants from their boards and made expenditure-level decisions at the school level. Similarly, 82% of principals from 93 secondary schools received block grants.

About half of the principals indicated that there were no guidelines for, or review of, their allocation decisions beyond the fact that they could not spend beyond their total grant. Many who indicated that guidelines or restrictions existed were referring to traditional board requests for budgets from the schools, applications to special funds for special needs, and/

or restrictions on one item (e.g., textbooks) but not on others. It appears from the comments by principals that few boards appeared to apply strong controls to the expenditure-level decisions within the schools.

The question then revolves around who makes expenditure-level decisions within schools. Is it primarily a decision reserved for the principal, as the person with ultimate responsibility, or is it delegated to, or shared with, others?

Elementary Schools

For decisions regarding expenditure levels for learning materials at the elementary school level, respondents were asked to indicate the way in which people in their schools made decisions. The degree of involvement was identified as to whether decision makers:

- made final expenditure decisions;
- were on the decision-making team for final decisions;
- had input to the setting of priorities; or
- made expenditure requests.

The analysis focused on who made the final decision. Column A of table 7 summarizes the data for elementary schools which show that the team approach was dominant, although the principal was involved in a very high percentage of the decisions. Assuming that conveners (listed on the questionnaire as "subject/division/grade convener") are teachers, it can also be seen that teachers were involved in a high percentage of expenditure level decisions. In particular, it can be seen that:

- decisions were made by teams or combinations of individuals in over 60% of the schools;
- principals (or the vice-principal as the principal's representative) were involved in the final decisions in about 80% of the schools;
- teachers were involved in the final decisions in about 55% of the schools.

Table 7: Final Decision Makers for School-Based Decisions, as Reported by Elementary School Prinipals

FINAL DECISION MAKERS	A. REGARDING EXPENDITURE LEVEL DECISIONS		B. REGARDING LEARNING MATERIALS TITLE-SELECTION DECISIONS			
			ALL LEARN.MAT.		APPROVED TEXTBOOKS	
	#	%	#	%	#	%
NO TEAMS						
° Principal	35	30.2	19	15.2	22	18.0
° Vice-Principal	2	1.7	0	0.0	0	0.0
° Conveners	0	0.0	0	0.0	0	0.0
° Teachers	4	3.4	5	4.0	2	1.6
Sub-total	41	35.3	24	19.2	24	19.7
TEAMS OR COMBINATIONS OF POSITIONS						
° Principal (P) & Vice-Principal (VP)	9	7.8	7	5.6	5	4.1
° P and/or VP + Conveners (C)	7	6.0	5	4.0	6	4.9
° P and/or VP + C + Teachers (T)	10	8.6	20	16.0	18	14.8
° P and/or VP + T	32	27.6	49	39.2	55	45.1
° C	2	1.7	1	.8	1	.8
° C & T	3	2.6	6	4.8	7	5.7
° T	12	10.3	13	10.4	6	4.9
Sub-total	75	64.7	101	80.8	98	83.3
TOTAL	116	100.0%	125	100.0%	122	100.0%
° No final decision makers noted	5		1		3	
° No answer	7		2		3	
	128		128		128	

Of all the possible combinations of decision makers, two stand out:

- Principals reserved the final decision for themselves in about 1/3 of schools.

- Principals shared the decision with (non-convener) teachers in another 1/3 of schools.

Secondary Schools

As mentioned previously, 82% of principals from 93 schools reported receiving block grants and making expenditure-level decisions within the school. Decision-making patterns, as reported by principals, were somewhat different at the secondary school level.

The team approach was even more dominant than at the elementary level, while secondary school principals were involved to about the same extent as elementary school principals. As would be expected because of the differences in structure between elementary schools and secondary schools, teachers who were not department heads were much less involved in expenditure level decisions. Table 8, which describes the detailed findings for secondary schools, shows that:

- decisions were made by teams or combinations of individuals in about 3/4 of the schools;

- principals were involved in the final decisions in about 80% of the schools;

- department heads were involved in final decisions in over 60% of schools.

Of all the possible combinations of decision makers, two stand out:

- In almost half of the schools, a team of principal (and/or vice-principal and department heads made final expenditure level decisions.

- In about 20% of schools, the principal made the final decisions.

Although no direct questions were asked in the questionnaires, it has been observed that allocations of funds at the school level were generally made to departments, and decisions about the allocations of funds within departments, were made by department heads and/or teachers.

Table 8: Final Decision Makers for School-Based Expenditure-Level Decisions, as Reported by Secondary School Principals

FINAL DECISION MAKERS	#	%
NO TEAMS		
° Principal	18	20.9
° Vice-Principal	1	1.2
° Department Head	1	1.2
° Teachers	1	1.2
Sub-total	21	24.4
TEAMS OR COMBINATIONS OF POSITIONS		
° Principal (P) and Vice-Principal (VP)	5	5.8
° P and/or VP + Department Head (DH)	42	48.8
° P and/or VP + DH + Teachers (T)	1	1.2
° P and/or VP + T	3	3.5
° DH	7	8.1
° DH + T	4	4.7
° T	3	3.5
Sub-total	65	75.6
TOTAL	86	100.0%
° No final decision-makers noted	3	
° No answer	4	
	93	

Learning-Material-Selection Decisions

Decisions about which title to select, whether for textbooks or other types of learning materials, were assumed to be made in conjunction with expenditure-level decisions in some schools and independently in others. Hence results were expected to be similar in pattern to the expenditure-level decisions, but with a diminished role for some principals and a more dominant role for teachers.

The investigation included asking principals and teachers which decisions were made at the school level (versus board level) and then, for school-based decisions, who participated in the decisions and what was the degree of involvement.

Elementary and secondary school principals and secondary department heads were asked to indicate the level at which decisions were made about the selection of titles of classroom-based learning materials for their schools. Tables 9, 10, and 11 show these results. Respondents were allowed to check as many boxes as applied and this sometimes meant that one school checked two or three levels of decision making for one type of learning material. Interpretation is limited accordingly to noting trends.

The observable trends were:

- Board-level decisions were more common for elementary than secondary schools and were more likely to be reported by secondary principals than by secondary department heads.

- Of all the categories of learning materials, the board was most likely to be involved in title selection of textbooks and computer software.

- Most decisions were made at the division or classroom teacher level in elementary schools and the department and/or teacher level in secondary schools.

Elementary principals, secondary school principals, and secondary school department heads were asked to indicate the degree to which people in their schools participated in decisions about the selection of both learning materials (in general) and approved textbooks. The degree of participation included the following:

- making final decision;

- participating in final decision-making team;

- contributing to setting priorities;

- making preferences known.

Table 9: The Level at Which Decisions Are Made About the Selection of Classroom-Based Learning Materials, as Reported by Elementary School Principals

	Board Level		School or Division Level		Classroom-Teacher Level		Not applicable	
	#	%	#	%	#	%	#	%
° Approved textbooks	41	32	98	77	75	59	1	.01
° Reference materials	16	13	98	77	95	75	0	
° Supplementary or non-approved textbooks	43	34	76	60	70	55	7	.05
° Consumable workbooks	9	7	90	71	90	71	2	.02
° Other non-consumable print resources intended for use in classrooms	10	8	88	69	101	79	0	
° Other non-print resources intended for use in classrooms	20	16	87	68	94	74	1	.01
° Computer software intended for use in classrooms	62	49	93	73	73	57	4	.03

Table 10: The Level at Which Decisions Are Made About the Selection of Titles of Classroom-Based Learning Materials, as Reported by Secondary School Principals

	Board Level		School or Principal Level		Department Level		Classroom-Teacher Level		Not applicable	
	#	%	#	%	#	%	#	%	#	%
° Approved textbooks	21	22	30	32	75	81	54	58	0	
° Reference materials	8	8	31	33	81	87	54	58	0	
° Supplementary or non-approved textbooks	29	31	40	43	66	71	45	48	1	1
° Consumable workbooks	3	3	24	26	71	76	53	57	9	10
° Other non-consumable print resources intended for use in classrooms	2	2	28	30	72	77	61	66	3	3
° Other non-print resources intended for use in classrooms	2	2	25	27	72	77	61	66	0	
° Computer software intended for use in classrooms	10	11	36	39	69	74	59	63	1	1

Table 11: The Level at Which Decisions Are Made About the Selection of Titles of Classroom-Based Learning Materials, as Reported by Secondary School Department Heads

	Board Level		Principal or Inter-departmental Level		Department Level		Classroom-Teacher Level		Not applicable	
	#	%	#	%	#	%	#	%	#	%
° Approved textbooks	88	25.2	44	12.6	263	75.4	165	47.3	8	
° Reference materials	15	4.3	20	5.7	270	77.4	215	61.6	2	
° Supplementary or non-approved textbooks	40	11.5	29	8.3	231	66.2	188	53.9	19	
° Consumable workbooks	11	3.2	15	4.3	165	47.3	138	39.5	102	
° Other non-consumable print resources intended for use in classrooms	12	3.4	14	4.0	210	60.2	205	58.7	41	
° Other non-print resources intended for use in classrooms	14	4.0	20	5.7	218	62.5	221	63.3	21	
° Computer software intended for us in classrooms	30	8.6	29	8.3	157	45.0	117	33.5	111	

Table 12: Final Decision Makers for Department-Based Decisions, as Reported by Secondary School Department Heads

FINAL DECISION MAKERS	REGARDING LEARNING-MATERIALS TITLE-SELECTION DECISIONS			
	ALL LEARNING MATERIALS		APPROVED TEXTBOOKS	
	#	%	#	%
NO TEAM				
° P	15	4.5	14	4.5
° VP	1	.3	1	.3
° DH	38	11.4	39	12.4
° T	4	1.2	8	2.5
Sub-total	58	17.5	62	19.7
TEAMS OR COMBINATIONS OF INDIVIDUALS				
° P + VP	4	1.2	3	1.0
° P +/or VP + DH	27	8.1	30	9.6
° P +/or VP + DH + T	15	4.5	14	4.5
° P +/or VP + T	1	.3	8	2.5
° DH	40	12.0	34	10.8
° DH + T	112	33.7	90	28.7
° T	75	22.6	73	23.2
Sub-total	274	82.5	252	80.3
TOTAL	332	100.0	314	100.0
° no final decision makers noted	17		15	
° no answer	0		20	
	349		349	

Elementary Schools

Decisions regarding the selection of classroom-based learning materials once again involved both principals and teachers to a high degree at the elementary level. Returning to table 7, "Final Decision Makers for School-based Decisions as Reported by Elementary School Principals", it can be seen that the pattern of "title" decisions is somewhat different from "expenditure level" decisions. Fewer principals reserved the final decision for themselves and a much higher proportion of decisions was made by teams.

Secondary Schools

Questions about "title decisions" in secondary schools decisions were directed towards the department heads. Table 12 shows a definite shift of responsibility away from the principal and/or vice-principal when compared to expenditure-level decisions (table 8).

Conclusions

Expenditure-level and selection decisions about learning materials tended to be centred in the schools. Boards were involved more in textbook and computer-software selection than for other kinds of learning materials, but the decisions were still centred in schools for the most part.

Within schools, expenditure decisions were made by either principals alone or teams which included principals and teachers. For within-school learning-materials selection, team decisions were dominant and very few principals reserved the final decision to themselves.

6. Patterns of Use

Investigations of patterns of use of the various types of instructional materials used by students in the classroom provide answers to questions critical to textbook use:

- To what degree are students involved with using textbooks in the classroom?

- How does this compare with the degree to which they use other instructional materials?

- If texts are used, how many are used? How many for the full year? How many for part of the year? How many are full sets of textbooks and how many are partial sets?

Student Work Time Involving Textbooks

Both elementary teachers and secondary department heads were asked to estimate the percentage of student work time (including homework time) that students were involved with textbooks and other types of learning materials throughout the year. "Time in which learning materials are not used, e.g., field trips, teacher demonstrations or presentations, should not be included in the totals on which the percentages are calculated." It was intended that teachers would answer for one grade and one subject or class only. Screening questions were devised to aid in the selection of the grade and subject, and these selections are used in the analysis.

Analysis of this question is limited to those who answered the written questionnaire and presumably had time to consider their answers, and to see the full list of types of learning materials.

Elementary Schools

Mean percentages of times were calculated using the estimates provided by the teachers. These are shown for all types of learning materials in table 13.

Two types of learning materials had mean percentage times of about 20% - "textbooks" and "other library resources". All other categories were less than 10%. Due to the phrasing in the questionnaire, it is assumed that "other library resources" includes books as well as non-book resources.

Further analysis of the two categories "textbooks" and "other library resources" - may be found on table 14.

Table 13: Mean Percentages of Time Spent by Students With Various Categories of Learning Materials, as Reported by 147 Elementary School Teachers and 246 Secondary School Department Heads

		ELEMENTARY	SECONDARY
(a)	textbooks	23.8	37.1
(b)	other commercially developed learning materials	5.5	20.8
(c)	board-developed learning materials	6.6	1.3
(d)	learning materials you developed yourself	7.3	2.4
(e)	consumable workbooks	8.7	6.0
(f)	audio-visual materials	3.7	2.8
(g)	computer software	9.8	4.2
(h)	classroom-based reference books	1.5	5.9
(i)	library reference books	6.5	3.5
(j)	other library resources	20.6	9.6
(k)	other photocopied materials	3.7	3.7
(l)	other	1.7	2.0

Table 14: Mean Percentages of Time Spent by Elementary School Students (In Various Types of Boards, Grades, and Subjects) With Textbooks and Other Library Resources, as Reported by 189 Elementary School Teachers

	TEXTBOOKS		OTHER LIBRARY RESOURCES	
	MEAN % OF TIME	NO. OF TEACHERS	MEAN % OF TIME	NO. OF TEACHERS
TOTAL	23.8	147	20.6	147
Public Elementary	22.2	116	21.6	116
Separate (K-8)	30.1	30	16.4	30
Grade 1	7.8	20	38.1	20
Grade 2	7.6	12	29.2	12
Grade 3	17.3	11	17.6	11
Grade 4	30.9	20	15.6	20
Grade 5	32.2	17	14.2	17
Grade 6	24.4	15	20.8	15
Grade 7	35.1	21	17.1	21
Grade 8	26.2	23	17.2	23
No grade indicated	25.0	7	11.2	7
Grades 1-2	7.7	32		
Grades 3-8	29.3	85		
Mathematics	39.1	34	19.3	34
Language Arts	25.2	29	19.7	29
Science	17.9	32	19.8	32
Social Studies	14.2	30	23.1	30
Other	16.5	14	21.2	14
No subject indicated	27.4	8	21.9	8

The following observations may be made about textbook use:

- The apparent difference between public elementary and separate elementary (K-8) is not statistically significant (t-test, two-tailed, p=.05) although it is close (p=.08).

- The pattern among grades shows a sharp break between Grade 2 and Grade 3. A t-test applied to Grades 1 and 2 versus Grades 3 through 8 was statistically significant at p= .001. We can conclude from this that there is a valid difference between the mean of 7.7% of time for textbook work for Grades 1 and 2 and the 29.3% of time for Grades 3 to 8.

- Mathematics is the subject where textbooks were used for the greatest mean percentage of time (almost 40%). It is statistically significantly different from the other subjects combined (mean=19%) (t=test, two-tailed, p= .001).

Secondary Schools

Department heads were asked to report a similar breakdown of the percentage of time the students in their classes were involved with the various categories of learning materials throughout the year. In order to provide responses in a representative variety of grades and subjects, they were asked to answer with respect to the course they were to teach on the following Monday, Period 2, if it was a Grade 9, 10, 11, or 12 class. Grade 13 classes were not included because the boards do not supply textbooks. If this period did not fit the criterion, they were asked to choose the next appropriate period on the timetable. Responses as indicated in tables 13 and 15 reveal the following trends:

- high use of textbooks (mean 37%);

- next highest category was other commercially developed learning materials (mean 21%);

- other categories range from 1% to 10%;

- no differences were noted between separate and public school boards or the various grades in use of textbooks;

- use of textbooks in various subjects showed higher use for mathematics and lower for health and physical education, family studies, and art and music.

Table 15: Mean Percentage of Time Spent Using "Textbooks" and "Other Commercially Developed Learning Materials" by Subject, as Reported by 246 Secondary School Department Heads

	TEXTBOOKS		OTHER COMMERCIALLY DEVELOPED LEARNING MATERIALS	
	MEAN % OF TIME	NO. OF DEPT. HEADS	MEAN % OF TIME	NO. OF DEPT. HEADS
English	45.3	24	18.6	24
Mathematics	68.9	31	10.6	31
Geography	32.1	26	23.7	26
Modern Languages	45.9	25	14.0	25
Science	41.0	33	26.0	33
History	37.2	20	13.2	20
Health & Physical Education	12.6	20	19.0	20
Family Studies	16.4	19	21.2	19
Art and Music	17.3	13	34.0	13
Industrial Arts	29.7	13	31.7	13
Other	27.0	9	28.9	9

Numbers and Use of Textbooks per Subject

In order to get a further description of the way in which teachers and students use textbooks in the classroom, respondents were asked to supply titles of a) full sets of textbooks and b) multiple copies for instructional groups smaller than class size. For each of the above, respondents were asked to indicate whether the textbooks were assigned to students for the duration of the course or unit, or if they remained in the classroom. If the latter was the case, they were asked whether the textbooks could be borrowed for home use. Information was also sought regarding students sharing textbooks in the classroom, and, if so, why.

Elementary Schools

Ninety-seven elementary school teachers listed 214 class sets of textbooks that they use in the subject indicated on their questionnaire. (The number of respondents reflects the fact that telephone respondents were not asked to complete this item.)

- 122 or 60% of textbooks were assigned to students for the duration of the course or unit;
- 66 or 35% of textbooks remained in the classroom but could be borrowed for home use;
- 26 or 12% of textbooks could not be taken home;
- 45% of the books were used for part of the year only;
- 55% were used for the entire year.

Of those who answered and indicated the use of full sets of texts (table 16):

- 40% indicated the use of one full set;
- 25% indicated the use of two full sets.

Forty-six elementary teachers listed 104 titles of partial sets (multiple copies for instructional groups smaller than class size) (table 16):

- 35% indicated the use of one title;
- 25% indicated the use of two titles;
- 20% indicated the use of three and four titles.

Table 16: Elementary School Teachers Indicating Numbers of Full and Partial Sets of Textbooks per Subject

NO. OF TITLES	FULL SETS # OF TEACHERS	FULL SETS %	PARTIAL SETS # OF TEACHERS	PARTIAL SETS %
1	41	42.3	16	34.8
2	24	24.7	11	23.9
3	8	8.2	9	19.6
4	9	9.3	9	19.6
5	4	4.1	n.a.	
6	5	5.1	—	
7	2	2.1	—	
8	3	3.1	—	

Table 17: Secondary School Department Heads Indicating Numbers of Full and Partial Sets of Textbooks per Subject

NO. OF TITLES	FULL SETS NO. OF DEPT. HEADS	FULL SETS %	PARTIAL SETS NO. OF DEPT. HEADS	PARTIAL SETS %
1	121	48.2	24	55.8
2	55	21.9	7	16.3
3	25	10.0	10	23.2
4	12	4.8	2	4.6
5	12	4.8	n.a.	
6	14	5.6	--	
7	1	.4	--	
8	10	4.0		

Elementary teachers responded to the question, "Do students share textbooks in your classroom?" with the following results:

- 42 or 30% responded "yes";
- 34 of the 42 (24% of all teachers answering) gave "insufficient texts" as their reason for sharing (this may have included textbooks which were not the principal textbooks for the subject);
- 9 of the 42 gave pedagogical reasons for sharing (one person indicated that both reasons applied).

Secondary Schools

Secondary school department heads reported a higher level of use of full sets of textbooks than elementary teachers (table 17).

An analysis of the data indicates that:

- 50% used one full class set of textbooks;
- 20% used two class sets of textbooks;
- 60% of the texts were assigned to the students for the duration of the course or unit;
- 20% of the texts could be borrowed for home use;
- 10% of the texts remained in the classroom;
- 50% of the texts were assigned for part of the year.

Of the secondary school department heads who reported using multiple copies of textbooks for instructional groups smaller than class size (table 17), percentages of use were as follows:

- 55% used 1 title;
- 15% used 2 titles;
- 25% used 3 titles.

Department heads reported that, of multiple copies of textbooks for instructional groups smaller than class size,

- 5 or 6.5% of the textbooks were assigned to students for the duration of the course or unit;

- 63 or approximately 83% remained in the classroom, but could be borrowed for home use;

- 13 or 17% could not be taken home.

Length of use is reported as the following:

- 65% were used for part of the year or semester; the rest were used for the entire year or semester.

Secondary department heads responded to the questions about sharing textbooks with the following results:

- 43 or 16% of those who answered indicated sharing;

- 40 of the 43 (15% of all respondents) gave "insufficient texts" as the reason for sharing (as before, this may have included textbooks which were not the main textbooks for the subject);

- 3 of the 43 gave pedagogical reasons.

Conclusions

Of all of the time that students were working with learning materials, elementary school students from Grades 3 to 8 were involved with textbooks almost 30% of the time. For grades 9 to 12, the mean percentage of time of involvement with textbooks was about 37%.

Mathematics at both the elementary and secondary school levels was the subject with most textbook involvement. Language arts at both levels and modern languages and sciences at the secondary school level were also quite high.

In classrooms where textbooks were used, there was usually more than one full set used for all or part of the year. Twenty-four per cent of elementary school teachers and 15% of secondary school department heads indicated that there was some sharing of textbooks because of "insufficient texts".

7. Length of Time Textbooks Are Used

Two factors presumably force the replacement of texts (hence expenditure of money for textbooks). If textbooks wear out or become outdated, they would need to be replaced.

Number of Students to Use Textbooks

The length of time a textbook can be used before it wears out was equated to the number of students who typically can use it before it wears out. In addition, respondents were asked to supply copyright dates of books they were currently using, to determine whether out-of-date textbooks are being used.

The 46 elementary teacher respondents (no telephone respondents) who answered the question about the average number of students who use a hardcover textbook before it wears out estimated from 3 to 20 students. The median answer was 5. Student use of a softcover textbook was estimated to range from 1 to 20 with a median of 5. The higher estimates referred to books assigned for only a short part of each term.

Secondary school department heads gave generally higher estimates of numbers of students using hardback textbooks than elementary school teachers. Their estimates ranged from 2 to 20, but the median was 8 for hardcover textbooks and 4.5 for softcover textbooks.

Copyright Dates

Copyright dates were used to determine how long a textbook can be used before it wears out or is outdated. Because many of the textbooks listed were used for part of the time for one unit only, caution should be used in interpreting this data. Several secondary department heads in the sciences explained in interviews that single units in old textbooks have never been done as well in any newer textbook. Because they have full class sets, they can go back to them for a week and take advantage of their availability.

Table 18 shows the distribution of textbooks for both elementary and secondary schools (with and without language arts). Language arts was excluded when analysis showed that original copyright dates of works of literature accounted for most of the oldest dates. The following observations are possible:

- over 85% of elementary school textbooks were 10 or fewer years old;
- over 70% of secondary school textbook titles were 10 or fewer years old;
- over 70% of non-language arts titles were 10 or fewer years old.

Table 18: Distribution of Full Sets of Textbooks by Copyright Dates, as Reported by 84 Elementary School Teachers and Secondary School Department Heads

COPYRIGHT DATES	ELEMENTARY TEXTBOOKS		SECONDARY TEXTBOOKS			
			TOTAL		WITHOUT ENGLISH*	
	#	%	#	%	#	%
before 1966	5	2.7	33	7.6	17	4.3
1966 - 1970	8	4.1	35	8.1	25	6.4
1971 - 1975	15	7.3	48	11.1	41	10.4
1976 - 1980	109	53.6	162	37.2	155	39.4
1981 - 1985	66	32.3	158	36.1	155	39.4
	203	100.0	436	100.0	393	100.0

* English in this case refers to the subject "English".

Conclusions

Most textbook titles were 10 or fewer years old (since the copyright date) and hardcover copies were expected to last through an average of 8 secondary students or 5 elementary students before wearing out. Apparently hardcover textbooks have a slightly longer life at the secondary level than at the elementary level. Presumably small replacement orders or rebinding fills in the gaps until a new edition or new title is purchased.

8. Trends in Use of Texts (Percentage of Students' Time)

The question whether textbook use is declining or increasing is an interesting one. The impact of either answer could be seen as either positive or negative, depending on the educational philosophy represented. In order to sort out the maze of this problem, respondents were asked to indicate increases or decreases, if any, and identify reasons for change.

Elementary School Teachers

Elementary school teachers were asked if, over the past five years, there had been changes in the percentage of time that students use textbooks. The question was specific to the curriculum and grade level that they were using as the basis for answering the part of the questionnaire related to patterns of use. Trends are described in table 19:

- 33% of elementary school teachers saw a decrease in use of texts;
- the reason with the highest frequency for "decrease" was a trend to resource-based learning (61 of 90 respondents);
- the reason with the second highest frequency for decline was changes in curriculum guidelines (57 of 90);
- 40 out of 90 gave decrease in funds as a reason for decline;
- 32 out of 90 cited each of two reasons -- "increased availability of photocopiers" and "board developed materials" as the reason for decrease;
- 10% saw an increase in the use of textbooks and cited changes in curriculum guidelines as the reason with the most frequency (18 of 27).

Secondary Department Heads

Secondary school department heads answered the same question with regard to the subject and grade indicated for other questions related to patterns of use. Results are tabulated in table 20:

- 45% of the respondents saw no change in the use of textbooks;

Table 19: Perceptions of Elementary School Teachers re Increase or Decrease in Use of Textbooks Over the Past 5 Years and Reasons (Multiple) for Change

ELEMENTARY TEACHER RESPONDENTS		SEE INCREASE IN USE OF TEXTS	SEE NO CHANGE	SEE DECREASE IN USE OF TEXTS	DON'T KNOW OR NO ANSWER
	#	27	76	90	78
	%	9.8%	28.2%	33.2%	28.8%

REASONS FOR CHANGE (MULTIPLE MENTIONS)	NO. OF MENTIONS	NO. OF MENTIONS
° Changes in curriculum guidelines	18	57
° Increase in funds available	6	4
° Decrease in funds available	0	40
° Trends to resource-based learning	5	61
° Longer periods	2	3
° Increased availability of photocopiers	2	32
° Increased availability of board-developed materials	4	32
° Increases in Circular 14 titles	2	3
° Deletions of Circular 14 titles	0	4
° Changes in board-approved text lists	1	7
° Size of instructional groupings	7	16
° Availability of text for ability levels	13	27

Table 20: Perceptions of Secondary School Department Heads re Increase or Decrease in Use of Textbooks Over the Past 5 Years and Reasons (Multiple) for Change

		SEE INCREASE IN USE OF TEXTS	SEE NO CHANGE	SEE DECREASE IN USE OF TEXTS	DON'T KNOW OR NO ANSWER
SECONDARY DEPT. HEAD RESPONDENTS	#	62	157	101	30
	%	17.7%	44.9%	28.9%	8.5%

REASONS FOR CHANGE (MULTIPLE MENTIONS)	NO. OF MENTIONS	NO. OF MENTIONS
° Changes in curriculum guidelines	24	43
° Increase in funds available	16	5
° Decrease in funds available	4	30
° Trends to resource-based learning	9	46
° Longer periods	19	28
° Increased availability of photocopiers	11	56
° Increased availability of board-developed materials	2	25
° Increases in Circular 14 titles	17	4
° Deletions of Circular 14 titles	1	2
° Changes in board-approved text lists	5	3
° Size of instructional groupings	5	12
° Availability of text for ability levels	36	40
° Semestering	13	20

- 29% saw a decrease in the use of textbooks;

- increased availability of photocopiers was cited most frequently as the reason for the decrease (56 of 101 respondents);

- availability of texts for ability levels, trends to resource-based learning, and changes in curriculum guidelines were listed next most frequently (40-46 of 101).

Conclusions

A higher percentage of teachers saw a decrease in the use of textbooks than saw an increase, but there was still a sizeable percentage who didn't indicate a decrease. The most cited reasons for decline were ministry-initiated changes -- the trend toward resource-based learning and changes in curriculum guidelines. Decrease in funds available and the increased availability of photocopiers were also cited as reasons for a decrease. Although the researchers recognize that the use of photocopiers may or may not be a legitimate alternative to textbooks, no attempt to determine this was made in this study.

9. Views of Educators About the Adequacy of Present Funding Levels for Learning Materials

It has been suggested that many people believe that funding levels are inadequate and that the quality of education is declining accordingly. A question of this nature was put to seven of the eight samples of educators and results are mixed.

The question read: "Considering what you know about the availability of learning materials in your school(s), how do you assess the impact of present funding levels for learning materials on the quality of education in your (school) board?"

Table 21 shows results from the six samples (not including telephone respondents). From 44% to 66% thought the impact was negative (comparison of sums of two top items of each sample), while from 23% to 45% thought the impact was positive. Those closest to the classroom tended to have more negative views.

Conclusions

While most of the recent publicity about learning-materials expenditures had focused on the scarcity or shortage of funds, educators had distinctly mixed views as to the impact. More saw a negative impact than a positive one, but a sizeable portion did see a positive impact.

Table 21: Perceptions of the Impact of the Availability of Learning Materials on the Quality of Education

	SUPERINTENDENTS OF EDUCATION		CO-ORDINATORS / CONSULTANTS		ELEMENTARY SCHOOL PRINCIPALS		SECONDARY SCHOOL PRINCIPALS		ELEMENTARY SCHOOL TEACHERS		SECONDARY SCHOOL DEPT. HEADS	
	#	%	#	%	#	%	#	%	#	%	#	%
EXTREMELY NEGATIVE IMPACT	10	9.4	20	8.5	10	9.3	4	8.5	22	13.8	37	13.5
SOMEWHAT NEGATIVE IMPACT	41	38.7	100	42.7	37	34.6	27	57.4	76	47.8	129	47.1
NO IMPACT	11	10.4	11	4.7	8	7.5	5	10.6	18	11.3	35	12.7
SOMEWHAT POSITIVE IMPACT	35	33.0	82	35.0	40	37.4	9	19.2	36	22.6	55	20.1
EXTREMELY POSITIVE IMPACT	9	8.5	21	9.0	12	11.2	2	4.3	7	4.4	18	6.6
	106	100.0	234	100.0	107	100.0	47	100.0	159	100.0	274	100.0
NO ANSWER + DON'T KNOW	---		19		21		44		111		75	
TOTAL	106		253		128		91		270		349	

10. Policy Responsibility

As the research question concerning awareness of ministry and board roles was translated into questionnaire format, it became obvious that what was really needed was feedback on what people thought the roles should be. Interest in this question is directed to three policy areas:

- expenditure levels for learning materials;
- approval of textbooks;
- patterns of use in the classroom.

Tables 22 to 24 summarize the data of the views of six samples as to where policy responsibility should be -- with the ministry or with boards/schools -- for the three areas. Based on chi-square tests of significance (top two rows were collapsed to meet statistical requirements) which showed that the difference observed could not have occurred by chance ($p = .001$), the following observations can be made:

- for policy responsibility for expenditure levels for learning materials

  a) there was a strong feeling that boards/schools should have the responsibility but some sharing with the ministry was acceptable;

  b) superintendents and coordinators were more likely than other educators to feel that sharing the responsibility with the ministry was appropriate.

- for approval of textbooks

  a) there were fairly equal sentiments about ministry and board roles in this matter of policy responsibility;

  b) superintendents and co-ordinators leaned toward greater ministry responsibility, principals saw a fairly even balance and teachers/department heads leaned toward more board/school responsibility.

- for patterns of use in the classroom

  a) there was fairly strong agreement that this should be a board/school area of policy responsibility.

Table 22: Opinions About the Proper Locus of Responsibility for Learning-Materials Policy: Expenditure Levels for Learning Materials

RESPONSIBILITY SHOULD BE ...	SUPERINTENDENTS OF CURRICULUM		CO-ORDINATORS/ CONSULTANTS		ELEMENTARY SCHOOL PRINCIPALS		SECONDARY SCHOOL PRINCIPALS		ELEMENTARY SCHOOL TEACHERS		SECONDARY SCHOOL DEPARTMENT HEADS	
	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL MINISTRY	3	2.9	7	2.8	1	0.9	0	0.0	7	3.9	7	2.4
MOSTLY MINISTRY	10	9.5	11	4.4	1	0.9	4	7.8	6	3.4	16	5.5
HELD EQUALLY BY MINISTRY AND BOARD	43	40.9	131	52.6	45	40.5	20	39.2	55	30.7	85	29.3
MOSTLY BOARD OR SCHOOL	35	33.3	74	29.7	42	37.8	16	31.4	61	34.1	125	43.1
TOTAL BOARD OR SCHOOL	14	13.3	26	10.4	22	19.8	11	21.6	50	27.9	57	19.7
TOTAL	105	100.0	249	100.0	111	100.0	51*	100.0	179	100.0	290	100.0
NO ANSWER OR DON'T KNOW	1		4		17		42		92		59	
	106		253		128		93		271		349	

* Caution should be used in interpreting percentages based on totals of less than 100.

Table 23: Opinions About the Proper Locus of Responsibility for Learning-Materials Policy: Approval of Textbooks

RESPONSIBILITY SHOULD BE ...	SUPERINTENDENTS OF CURRICULUM		CO-ORDINATORS/ CONSULTANTS		ELEMENTARY SCHOOL PRINCIPALS		SECONDARY SCHOOL PRINCIPALS		ELEMENTARY SCHOOL TEACHERS		SECONDARY SCHOOL DEPARTMENT HEADS	
	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL MINISTRY	13	12.4	20	8.1	7	6.4	3	6.2	16	9.0	21	7.1
MOSTLY MINISTRY	30	28.6	51	20.6	25	22.7	11	22.9	19	10.7	47	16.0
HELD EQUALLY BY MINISTRY AND BOARD	46	43.8	124	50.2	43	42.7	21	43.8	61	34.3	100	34.0
MOSTLY BOARD OR SCHOOL	12	11.4	39	15.8	19	17.3	10	20.8	49	27.5	89	30.3
TOTAL BOARD OR SCHOOL	4	3.8	13	5.3	12	10.9	3	6.2	33	18.5	37	12.6
TOTAL	105	100.0	247	100.0	110	100.0	48*	100.0	178	100.0	294	100.0
NO ANSWER OR DON'T KNOW	1		6		18		45		93		55	
	106		253		128		93		271		349	

* Caution should be used in interpreting percentages based on totals of less than 100.

Table 24: Opinions About the Proper Locus of Responsibility for Learning-Materials Policy: Patterns of Use in the Classroom

RESPONSIBILITY SHOULD BE ...	SUPERINTENDENTS OF CURRICULUM		CO-ORDINATORS/ CONSULTANTS		ELEMENTARY SCHOOL PRINCIPALS		SECONDARY SCHOOL PRINCIPALS		ELEMENTARY SCHOOL TEACHERS		SECONDARY SCHOOL DEPARTMENT HEADS	
	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL MINISTRY	1	0.9	2	0.8	1	0.9	0	0.0	3	1.7	2	0.7
MOSTLY MINISTRY	1	0.9	2	0.8	0	0.0	0	0.0	4	2.2	1	0.4
HELD EQUALLY BY MINISTRY AND BOARD	7	6.7	44	17.7	13	1.8	6	12.2	13	7.3	17	6.0
MOSTLY BOARD OR SCHOOL	54	51.9	103	41.4	37	33.6	15	30.6	54	30.5	89	31.6
TOTAL BOARD OR SCHOOL	41	39.4	98	39.3	57	53.6	28	57.1	103	58.2	173	61.3
TOTAL	104	100.0	249	100.0	108	100.0	49*	100.0	177	100.0	282	100.0
NO ANSWER OR DON'T KNOW	2		4		10		44		94		67	
	106		253		128		93		271		349	

* Caution should be used in interpreting percentages based on totals of less than 100.

Conclusion

Six of the categories of educators surveyed viewed policy responsibility for expenditure levels for learning materials and approval of textbooks as the joint responsibility of the ministry and boards/schools. Opinions leaned to slightly more ministry responsibility for policy on approval of textbooks. Opinions clearly lay in the direction of preferred board/school responsibility for patterns of use in the classroom.

11. Literature Review

A review of the literature "to identify factors contributing to the productivity of schools with particular reference to learning materials" was expanded to include issues related to decision-making patterns for selection and quantity of learning materials, patterns of use, and textbook expenditures. The findings of the literature review were summarized and organized into a bibliography which was submitted to the Ministry of Education under separate cover.

The collection of 19 published and unpublished articles and reports, 9 of which were Canadian, reflected a surprising lack of research on the expenditure and use of instructional materials.

Articles which related specifically to textbook use supported the use of the textbook as a valuable learning tool. One report documented that 9 out of 10 teachers used textbooks and teachers' guides extensively and with few changes. Another reported textbooks as the focus of more than 75% of a pupil's classroom time. (The current study asked respondents to indicate the percentage of time the students in the class were involved with various categories of learning materials, including textbooks, throughout the year. Teacher demonstrations or presentations were not to be included in these calculations, but homework time was included. Results as described previously in this report show that students are involved with textbooks 23.8% of the time as reported by elementary school teachers, and 37.1% of the time as reported by secondary school department heads.) Reasons given in the articles for the reliance on textbooks as instructional materials include peer pressure among teachers and ease of use. Parent support for the increased use and availability of textbooks in Canadian classrooms was reported by one study.

It should be noted, however, that the set of articles and reports related to textbook use may in itself represent a biased sample, because only one point of view was represented, that of the textbook as a primary instructional tool.

Expenditure patterns described in Ontario-based literature reported low per-pupil expenditures for textbooks in Ontario. Throughout the articles and reports, the definition of "textbook" remained consistently ambiguous. It was unclear to the reader whether "textbooks" referred to all textbooks used by students or whether they were limited to those listed on Circular 14. It should be noted that sources of data for Canadian articles and reports consisted of the following:

- inconsistent statistical data gathered from schools and the Ministry of Education;

- publishers' reported sales of textbooks related to total sales, per-pupil sales, and projected sales;

- telephone survey of parents;
- reading of available files, reports, and literature;
- personal interviews;
- discussions with publishers.

In some instances, these may reflect an unfortunate bias in either sampling or reporting, and the use of inconsistent statistical data of necessity created inconclusive results.

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